

SEQUENCE LISTING

<110> Birkett, Ashley J.

<120> IMMUNOGENIC HBc CHIMER PARTICLES HAVING ENHANCED STABILITY

<130> 4564/91644 ICC-102.2 DV I

<140> NOT YET ASSIGNED

<141> 2004-3-19

<150> 09/930,915

<151> 2001-08-15

<150> PCT/US01/41759

<151> 2001-08-16

<150> 60/226,867

<151> 2000-08-22

<150> 60/225,843

<151> 2000-08-16

<160> 313

<170> PatentIn Ver. 2.1

<210> 1

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<212> PRT

<213> Plasmodium falciparum

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<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 2

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Ala	Ser	Val	Thr
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<212> PRT

<213> Streptococcus pneumoniae

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Lys	Leu	Glu	Glu	Leu	Ser	Asp	Lys	Ile	Asp	Glu	Leu	Asp	Ala	Glu
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Gln Lys Lys Tyr Asp Glu Asp Gln Lys Lys Thr Glu Glu Lys Ala Ala
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Leu Glu Lys Ala Ala Ser Glu Glu Met Asp Lys Ala Val Ala Ala Val
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Gln Gln Ala
35

<210> 5
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<212> PRT
<213> Cryptosporidium parvum

<400> 5
Gln Asp Lys Pro Ala Asp Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu
1 5 10 15
Pro Ala Ala Gln Gln Asp Lys Pro Ala Asp Ala
20 25

<210> 6
<211> 17
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<213> Human immunodeficiency virus type 1

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Arg Lys Arg Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Ile Thr Lys
1 5 10 15
Asn

<210> 7
<211> 31
<212> PRT
<213> Foot-and-mouth disease virus

<400> 7
Tyr Asn Gly Glu Cys Arg Tyr Asn Arg Asn Ala Val Pro Asn Leu Arg
1 5 10 15
Gly Asp Leu Gln Val Leu Ala Gln Lys Val Ala Arg Thr Leu Pro
20 25 30

<210> 8
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<212> PRT
<213> Influenza A virus

<400> 8

Tyr Arg Asn Leu Leu Trp Leu Thr Glu Lys
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<210> 9
 <211> 23
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 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
 1 5 10 15
 Arg Cys Asn Gly Ser Ser Asp
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<210> 10
 <211> 23
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 <213> Influenza A virus

<400> 10
 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
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 Arg Cys Asn Asp Ser Ser Asp
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<210> 11
 <211> 142
 <212> PRT
 <213> Yersinia pestis

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 Asp Ile Leu Lys Val Ile Val Asp Ser Met Asn His His Gly Asp Ala
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 Arg Ser Lys Leu Arg Glu Glu Leu Ala Glu Leu Thr Ala Glu Leu Lys
 20 25 30
 Ile Tyr Ser Val Ile Gln Ala Glu Ile Asn Lys His Leu Ser Ser Ser
 35 40 45
 Gly Thr Ile Asn Ile His Asp Lys Ser Ile Asn Leu Met Asp Lys Asn
 50 55 60
 Leu Tyr Gly Tyr Thr Asp Glu Glu Ile Phe Lys Ala Ser Ala Glu Tyr
 65 70 75 80
 Lys Ile Leu Glu Lys Met Pro Gln Thr Thr Ile Gln Val Asp Gly Ser
 85 90 95
 Glu Lys Lys Ile Val Ser Ile Lys Asp Phe Leu Gly Ser Glu Asn Lys
 100 105 110
 Arg Thr Gly Ala Leu Gly Asn Leu Lys Asn Ser Tyr Ser Tyr Asn Lys
 115 120 125
 Asp Asn Asn Glu Leu Ser His Phe Ala Thr Thr Cys Ser Asp

130

135

140

<210> 12
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 <213> Haemophilus influenzae

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 Cys Ser Ser Ser Asn Asn Asp Ala Ala Gly Asn Gly Ala Ala Gln Phe
 1 5 10 15

Gly Gly Tyr

<210> 13
 <211> 11
 <212> PRT
 <213> Haemophilus influenzae

<400> 13
 Asn Lys Leu Gly Thr Val Ser Tyr Gly Glu Glu
 1 5 10

<210> 14
 <211> 16
 <212> PRT
 <213> Haemophilus influenzae

<400> 14
 Asn Asp Glu Ala Ala Tyr Ser Lys Asn Arg Arg Ala Val Leu Ala Tyr
 1 5 10 15

<210> 15
 <211> 28
 <212> PRT
 <213> Moraxella catarrhalis

<400> 15
 Leu Asp Ile Glu Lys Asp Lys Lys Lys Arg Thr Asp Glu Gln Leu Gln
 1 5 10 15

Ala Glu Leu Asp Asp Lys Tyr Ala Gly Lys Gly Tyr
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<210> 16
 <211> 28
 <212> PRT
 <213> Moraxella catarrhalis

<400> 16
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 1 5 10 15

Ala Glu Leu Asp Asp Lys Tyr Ala Gly Lys Gly Tyr
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<210> 17
 <211> 27
 <212> PRT
 <213> *Moraxella catarrhalis*

<400> 17
 Ile Asp Ile Glu Lys Lys Gly Lys Ile Arg Thr Glu Ala Leu Leu Ala
 1 5 10 15
 Glu Leu Asn Lys Asp Tyr Pro Gly Gln Gly Tyr
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<210> 18
 <211> 25
 <212> PRT
 <213> *Porphyromonas gingivalis*

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 Gly Val Ser Pro Lys Val Cys Lys Asp Val Thr Val Glu Gly Ser Asn
 1 5 10 15
 Glu Phe Ala Pro Val Gln Asn Leu Thr
 20 25

<210> 19
 <211> 20
 <212> PRT
 <213> *Porphyromonas gingivalis*

<400> 19
 Arg Ile Gln Ser Thr Trp Arg Gln Lys Thr Val Asp Leu Pro Ala Gly
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 Thr Lys Tyr Val
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<210> 20
 <211> 21
 <212> PRT
 <213> *Trypanosoma cruzi*

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 Lys Ala Ala Ile Ala Pro Ala Lys Ala Ala Ala Ala Pro Ala Lys Ala
 1 5 10 15
 Ala Thr Ala Pro Ala
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<210> 21
 <211> 24
 <212> PRT
 <213> *Plasmodium falciparum*

<400> 21
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 1 5 10 15

Asn Ala Asn Pro Asn Val Asp Pro
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<210> 22
<211> 20
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<213> Plasmodium falciparum

<400> 22
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1 5 10 15

Asn Ala Asn Pro
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<210> 23
<211> 20
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<213> Plasmodium falciparum

<400> 23
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Asn Ala Asn Pro
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<210> 24
<211> 28
<212> PRT
<213> Plasmodium falciparum

<400> 24
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1 5 10 15

Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro
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<210> 25
<211> 20
<212> PRT
<213> Plasmodium falciparum

<400> 25
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1 5 10 15

Asn Pro Asn Val
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<210> 26
<211> 22
<212> PRT
<213> Plasmodium falciparum

<400> 26
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Asn Pro Asn Val Asp Pro
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<210> 27
 <211> 24
 <212> PRT
 <213> Plasmodium falciparum

<400> 27
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Asn Pro Asn Val Asp Pro Asn Ala
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<210> 28
 <211> 18
 <212> PRT
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<400> 28
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 1 5 10 15

Asn Val

<210> 29
 <211> 20
 <212> PRT
 <213> Plasmodium falciparum

<400> 29
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 1 5 10 15

Asn Val Asp Pro
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<210> 30
 <211> 22
 <212> PRT
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<400> 30
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 1 5 10 15

Asn Val Asp Pro Asn Ala
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<210> 31
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 <212> PRT
 <213> Plasmodium falciparum

<400> 31
 Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
 1 5 10 15

<210> 32
 <211> 18
 <212> PRT
 <213> Plasmodium falciparum

<400> 32
 Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
 1 5 10 15

Asp Pro

<210> 33
 <211> 20
 <212> PRT
 <213> Plasmodium falciparum

<400> 33
 Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
 1 5 10 15

Asp Pro Asn Ala
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<210> 34
 <211> 19
 <212> PRT
 <213> Plasmodium vivax

<400> 34
 Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln
 1 5 10 15

Pro Ala Gly

<210> 35
 <211> 18
 <212> PRT
 <213> Plasmodium vivax

<400> 35
 Arg Ala Asp Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Gly Gln Pro
 1 5 10 15

Ala Gly

<210> 36
<211> 18
<212> PRT
<213> Plasmodium vivax

<400> 36
Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
1 5 10 15
Pro Gly

<210> 37
<211> 18
<212> PRT
<213> Plasmodium vivax

<400> 37
Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp Gln
1 5 10 15
Pro Gly

<210> 38
<211> 18
<212> PRT
<213> Plasmodium vivax

<400> 38
Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Asp Asn Gln
1 5 10 15
Pro Gly

<210> 39
<211> 18
<212> PRT
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<400> 39
Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp Gln
1 5 10 15
Pro Gly

<210> 40
<211> 22
<212> PRT
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<400> 40
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1 5 10 15

Gln Glu Gly Gly Ala Ala
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<210> 41
<211> 16
<212> PRT
<213> Plasmodium berghei

<400> 41
Asp Pro Pro Pro Pro Asn Pro Asn Asp Pro Pro Pro Pro Asn Pro Asn
1 5 10 15

<210> 42
<211> 24
<212> PRT
<213> Plasmodium yoelii

<400> 42
Gln Gly Pro Gly Ala Pro Gln Gly Pro Gly Ala Pro Gln Gly Pro Gly
1 5 10 15

Ala Pro Gln Gly Pro Gly Ala Pro
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<210> 43
<211> 15
<212> PRT
<213> Streptococcus sobrinus

<400> 43
Lys Pro Arg Pro Ile Tyr Glu Ala Lys Leu Ala Gln Asn Gln Lys
1 5 10 15

<210> 44
<211> 16
<212> PRT
<213> Streptococcus sobrinus

<400> 44
Ala Lys Ala Asp Tyr Glu Ala Lys Leu Ala Gln Tyr Glu Lys Asp Leu
1 5 10 15

<210> 45
<211> 9
<212> PRT
<213> Shigella flexneri

<400> 45
Lys Asp Arg Thr Leu Ile Glu Gln Lys
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<210> 46
<211> 15
<212> PRT

<213> respiratory syncytial virus

<400> 46

Cys Ser Ile Cys Ser Asn Asn Pro Thr Cys Trp Ala Ile Cys Lys .
1 5 10 15

<210> 47

<211> 25

<212> PRT

<213> Entamoeba histolytica

<400> 47

Val Glu Cys Ala Ser Thr Val Cys Gln Asn Asp Asn Ser Cys Pro Ile
1 5 10 15

Ile Ala Asp Val Glu Lys Cys Asn Gln
20 25

<210> 48

<211> 34

<212> PRT

<213> Schistosoma japonicum

<400> 48

Asp Leu Gln Ser Glu Ile Ser Leu Ser Leu Glu Asn Gly Glu Leu Ile
1 5 10 15

Arg Arg Ala Lys Ser Ala Glu Ser Leu Ala Ser Glu Leu Gln Arg Arg
20 25 30

Val Asp

<210> 49

<211> 34

<212> PRT

<213> Schistosoma mansoni

<400> 49

Asp Leu Gln Ser Glu Ile Ser Leu Ser Leu Glu Asn Ser Glu Leu Ile
1 5 10 15

Arg Arg Ala Lys Ala Ala Glu Ser Leu Ala Ser Asp Leu Gln Arg Arg
20 25 30

Val Asp

<210> 50

<211> 16

<212> PRT

<213> Human immunodeficiency virus

<400> 50

Gly Pro Lys Glu Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Cys
1 5 10 15

<210> 51
 <211> 17
 <212> PRT
 <213> *Corynebacterium diphtheriae*

<400> 51
 Phe Gln Val Val His Asn Ser Tyr Asn Arg Pro Ala Tyr Ser Pro Gly
 1 5 10 15
 Cys

<210> 52
 <211> 25
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 <213> *Borrelia burgdorferi*

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 Val Glu Ile Lys Glu Gly Thr Val Thr Leu Lys Arg Glu Ile Asp Lys
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 Asn Gly Lys Val Thr Val Ser Leu Cys
 20 25

<210> 53
 <211> 19
 <212> PRT
 <213> *Borrelia burgdorferi*

<400> 53
 Thr Leu Ser Lys Asn Ile Ser Lys Ser Gly Glu Val Ser Val Glu Leu
 1 5 10 15
 Asn Asp Cys

<210> 54
 <211> 11
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<400> 54
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<210> 55
 <211> 21
 <212> PRT
 <213> *Trypanosoma cruzi*

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 1 5 10 15
 Ser Gly Asn Thr Cys
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<210> 56
 <211> 16
 <212> PRT
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<400> 56
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 1 5 10 15

<210> 57
 <211> 16
 <212> PRT
 <213> Plasmodium falciparum

<400> 57
 Asp Phe Asn His Tyr Tyr Thr Leu Lys Thr Gly Leu Glu Ala Asp Cys
 1 5 10 15

<210> 58
 <211> 18
 <212> PRT
 <213> Plasmodium falciparum

<400> 58
 Pro Ser Asp Lys His Ile Glu Gln Tyr Lys Lys Ile Lys Asn Ser Ile
 1 5 10 15

Ser Cys

<210> 59
 <211> 20
 <212> PRT
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<400> 59
 Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro
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Cys Ser Val Thr
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<210> 60
 <211> 19
 <212> PRT
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<400> 60
 Tyr Leu Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp Thr Pro Cys
 1 5 10 15

Ser Val Thr

<210> 61
 <211> 16
 <212> PRT
 <213> Streptococcus sobrinus

<400> 61
 Lys Pro Arg Pro Ile Tyr Glu Ala Lys Leu Ala Gln Asn Gln Lys Cys
 1 5 10 15

<210> 62
 <211> 17
 <212> PRT
 <213> Streptococcus sobrinus

<400> 62
 Ala Lys Ala Asp Tyr Glu Ala Lys Leu Ala Gln Tyr Glu Lys Asp Leu
 1 5 10 15

Cys

<210> 63
 <211> 16
 <212> PRT
 <213> Lymphocytic choriomeningitis virus

<400> 63
 Arg Pro Gln Ala Ser Gly Val Tyr Met Gly Asn Leu Thr Ala Gln Cys
 1 5 10 15

<210> 64
 <211> 16
 <212> PRT
 <213> Clostridium tetani

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 Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu Cys
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 <212> DNA
 <213> plasmid pKK223

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<210> 66
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 <212> DNA
 <213> plasmid pKK223

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 <212> DNA
 <213> Hepatitis B virus

 <400> 67
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 <210> 68
 <211> 29
 <212> DNA
 <213> Hepatitis B virus

 <400> 68
 gcggaattcc ttccaaatta acaccacc 29

 <210> 69
 <211> 38
 <212> DNA
 <213> Hepatitis B virus

 <400> 69
 cgcggaattca aaaagagctc gatccagcgt ctagagac 38

 <210> 70
 <211> 31
 <212> DNA
 <213> Hepatitis B virus

 <400> 70
 cgcaagctta aacaacagta gtctccggaa g 31

 <210> 71
 <211> 40
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: human
 cytochrome 450

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 <210> 72
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 <212> DNA
 <213> Hepatitis B virus

 <400> 72
 gcggaattcc atcttccaaa ttaacaccca c 31

 <210> 73
 <211> 39
 <212> DNA

<213> Hepatitis B virus

<400> 73

cgcggaattca aaaagagctc ccagcgtcta gagacctag

39

<210> 74

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: human
cytochrome P450

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caagaaaaac agctagacga aaacgcaaatt gtacagctc

39

<210> 75

<211> 42

<212> DNA

<213> Hepatitis B virus

<400> 75

cgcaagctta gagctcttga attccaacaa cagtagtctc cg

42

<210> 76

<211> 28

<212> DNA

<213> Hepatitis B virus

<400> 76

cgcgagctcc cagcgtctag agacctag

28

<210> 77

<211> 17

<212> DNA

<213> plasmid pKK223

<400> 77

gtatcaggct gaaaatc

17

<210> 78

<211> 19

<212> PRT

<213> Plasmodium falciparum

<400> 78

Ile Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
1 5 10 15

Pro Glu Leu

<210> 79

<211> 57

<212> DNA
 <213> Plasmodium falciparum

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 aattaacgct aatccgaacg ctaatccgaa cgctaataccg aacgctaatac cggagct 57

 <210> 80
 <211> 49
 <212> DNA
 <213> Plasmodium falciparum

 <400> 80
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 <210> 81
 <211> 31
 <212> PRT
 <213> Plasmodium falciparum

 <400> 81
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 Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Glu Leu
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 <212> DNA
 <213> Plasmodium falciparum

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 aattaacgct aatccgaacg ttgacccgaa cgctaataccg aacgctaatac cgaacgctaa 60
 tccgaacggtt gacccgaacg ctaatccgga gct 93

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 <211> 91
 <212> DNA
 <213> Plasmodium falciparum

 <400> 83
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 <213> Plasmodium falciparum

 <400> 84
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 1 5 10 15
 Pro Asn Ala Asn Pro Glu Leu
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<210> 85
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

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 aattaacgcg aatccgaacg tggatccgaa tgccaaccct aacgccaacc caaatgcgaa 60
 cccagagct 69

 <210> 86
 <211> 61
 <212> DNA
 <213> Plasmodium falciparum

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 t 61

 <210> 87
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 <211> 69
 <212> DNA
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 cccagagct 69

 <210> 89
 <211> 61
 <212> DNA
 <213> Plasmodium falciparum

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 t 61

 <210> 90
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 <400> 90
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1	5	10	15
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Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Glu Leu
20 25 30

<210> 91
<211> 93
<212> DNA
<213> Plasmodium falciparum

<400> 91
aattaacgcg aatccgaacg tggatccaaa tgccaaccct aacgctaata caaacgccaa 60
cccgaatggt gacccaatg ccaatccgga gct 93

<210> 92
<211> 85
<212> DNA
<213> Plasmodium falciparum

<400> 92
ccggattggc attgggggtca acattcgggt tggcgtttgg attagcgta gggttggcat 60
ttggatccac gttcggattc gcgtt 85

<210> 93
<211> 23
<212> PRT
<213> Plasmodium falciparum

<400> 93
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1 5 10 15
Ala Asn Pro Asn Val Glu Leu
20

<210> 94
<211> 69
<212> DNA
<213> Plasmodium falciparum

<400> 94
aattaatccg aacgtggatc caaatgccaa ccctaacgct aatccaaacg ccaacccgaa 60
tgttgagct 61

<210> 95
<211> 61
<212> DNA
<213> Plasmodium falciparum

<400> 95
caacattcgg gttggcgttt ggattagcgt tagggttggc atttgatcc acgttcggat 60
t 61

<210> 96
<211> 25

<212> PRT
 <213> Plasmodium falciparum

 <400> 96
 Ile Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
 1 5 10 15

 Ala Asn Pro Asn Val Asp Pro Glu Leu
 20 25

 <210> 97
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 <212> DNA
 <213> Plasmodium falciparum

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 tgttgaccct gagct 75

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 <212> DNA
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 <400> 98
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 Ala Asn Pro Asn Val Asp Pro Asn Ala Glu Leu
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 <213> Plasmodium falciparum

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 tgttgaccct aatgctgagc t 81

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 <400> 101
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ccacgttcgg att

73

<210> 102

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<213> Plasmodium falciparum

<400> 102

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Pro Asn Val Glu Leu
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<210> 103

<211> 63

<212> DNA

<213> Plasmodium falciparum

<400> 103

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gct 63

<210> 104

<211> 55

<212> DNA

<213> Plasmodium falciparum

<400> 104

caacattcgg gttggcgttt ggattagcgt taggggtggc atttgatcc acgtt 55

<210> 105

<211> 23

<212> PRT

<213> Plasmodium falciparum

<400> 105

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1 5 10 15

Pro Asn Val Asp Pro Glu Leu
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<210> 106

<211> 69

<212> DNA

<213> Plasmodium falciparum

<400> 106

aattaacgtg gatccaaatg ccaaccctaa cgctaattcca aacgccaacc cgaatgttga 60
ccctgagct 69

<210> 107

<211> 61

<212> DNA

<213> Plasmodium falciparum

<400> 107

cagggtcaac attcgggttg gcgtttggat tagcgtagg gttggcattt ggatccacgt 60
t 61

<210> 108

<211> 25

<212> PRT

<213> Plasmodium falciparum

<400> 108

Ile Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
1 5 10 15

Pro Asn Val Asp Pro Asn Ala Glu Leu
20 25

<210> 109

<211> 75

<212> DNA

<213> Plasmodium falciparum

<400> 109

aattaacgtg gatccaaatg ccaaccctaa cgctaattcca aacgccaacc cgaatgttga 60
ccctaagtct gagct 75

<210> 110

<211> 67

<212> DNA

<213> Plasmodium falciparum

<400> 110

cagcattagg gtcaacattc gggttggcgt ttggattagc gttagggttg gcatttggat 60
ccacgtt 67

<210> 111

<211> 19

<212> PRT

<213> Plasmodium falciparum

<400> 111

Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Val Glu Leu

<210> 112

<211> 57

<212> DNA

<213> Plasmodium falciparum

<400> 112

aattgatcca aatgccaacc ctaacgctaa tccaaacgcc aaccgcaatg ttgagct 57

<210> 113
 <211> 49
 <212> DNA
 <213> Plasmodium falciparum

<400> 113
 caacattcgg gttggcgttt ggattagcgt taggggttggc atttggatc 49

<210> 114
 <211> 21
 <212> PRT
 <213> Plasmodium falciparum

<400> 114
 Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
 1 5 10 15
 Val Asp Pro Glu Leu
 20

<210> 115
 <211> 63
 <212> DNA
 <213> Plasmodium falciparum

<400> 115
 aattgatcca aatgccaacc ctaacgctaa tccaaacgcc aaccggaatg ttgaccctga 60
 gct 63

<210> 116
 <211> 55
 <212> DNA
 <213> Plasmodium falciparum

<400> 116
 cagggtcaac attcgggttg gcgtttggat tagcgtagg gttggcattt ggatc 55

<210> 117
 <211> 23
 <212> PRT
 <213> Plasmodium falciparum

<400> 117
 Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
 1 5 10 15
 Val Asp Pro Asn Ala Glu Leu
 20

<210> 118
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

<400> 118

aattgatcca aatgccaacc ctaacgctaa tccaaacgcc aacccgaatg ttgaccctaa 60
tgccgagct 69

<210> 119
<211> 61
<212> DNA
<213> Plasmodium falciparum

<400> 119
cggcattagg gtcaacattc gggttggcgt ttggattagc gttaggggtg gcatttggat 60
c 61

<210> 120
<211> 21
<212> PRT
<213> Plasmodium falciparum

<400> 120
Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser
1 5 10 15
Pro Cys Ser Val Thr
20

<210> 121
<211> 69
<212> DNA
<213> Plasmodium falciparum

<400> 121
aattgaatat ctgaacaaaa tccagaactc tctgtccacc gaatggcttc cgtgctccgt 60
tacctagta 69

<210> 122
<211> 69
<212> DNA
<213> Plasmodium falciparum

<400> 122
agcttactag gtaacggagc acggagacca ttcgggtggac agagagttct ggattttggt 60
cagatattc 69

<210> 123
<211> 24
<212> PRT
<213> Plasmodium vivax

<400> 123
Ile Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala
1 5 10 15
Ala Gly Gln Pro Ala Gly Glu Leu
20

<210> 124

<211> 72
 <212> DNA
 <213> Plasmodium vivax

<400> 124
 aattccggct ggtgaccgtg cagatggcca gccagcgggt gaccgcgctg caggccagcc 60
 ggctggcgag ct 72

<210> 125
 <211> 64
 <212> DNA
 <213> Plasmodium vivax

<400> 125
 cgccagccgg ctggcctgca gcgcgggtcac ccgctggctg gccatctgca cggtcaccag 60
 ccgg 64

<210> 126
 <211> 21
 <212> PRT
 <213> Plasmodium vivax

<400> 126
 Ile Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln
 1 5 10 15
 Pro Ala Gly Glu Leu
 20

<210> 127
 <211> 63
 <212> DNA
 <213> Plasmodium vivax

<400> 127
 aattgacaga gcagccggac aaccagcagg cgatcgagca gacggacagc ccgcagggga 60
 gct 63

<210> 128
 <211> 55
 <212> DNA
 <213> Plasmodium vivax

<400> 128
 cccctgcggg ctgtccgtct gctcgatcgc ctgctgggtg tccggctgct ctgtc 55

<210> 129
 <211> 21
 <212> PRT
 <213> Plasmodium vivax

<400> 129
 Ile Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp
 1 5 10 15
 Gln Pro Gly Glu Leu

<210> 130
 <211> 63
 <212> DNA
 <213> Plasmodium vivax

<400> 130
 aattgcgaac ggcgccgcta atcagccggg ggcaaacggc gcgggtgatc aaccagggga 60
 gct 63

<210> 131
 <211> 55
 <212> DNA
 <213> Plasmodium vivax

<400> 131
 cccctggttg atcacccgcg ccgtttgccc ccggctgatt accggcgccg ttcgc 55

<210> 132
 <211> 21
 <212> PRT
 <213> Plasmodium vivax

<400> 132
 Ile Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp
 1 5 10 15
 Gln Pro Gly Glu Leu
 20

<210> 133
 <211> 63
 <212> DNA
 <213> Plasmodium vivax

<400> 133
 aattgcgaac ggcgccgata atcagccggg tgcaaacggg gcggatgacc aaccaggcga 60
 gct 63

<210> 134
 <211> 55
 <212> DNA
 <213> Plasmodium vivax

<400> 134
 cgccctggttg gtcacccgcc ccgtttgcac ccggctgatt atcggcgccg ttcgc 55

<210> 135
 <211> 39
 <212> PRT
 <213> Plasmodium vivax

<400> 135
 Ile Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp

1 5 10 15

Gln Pro Gly Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala
20 25 30

Asp Asp Gln Pro Gly Glu Leu
35

<210> 136
<211> 117
<212> DNA
<213> Plasmodium vivax

<400> 136
aattgcgaac ggcgcgcgta atcagccggg agcaaacggc gcggggggatc aaccaggcgc 60
caatggtgca gacaaccagc ctggggcgaa tggagccgat gaccaaccgc gcgagct 117

<210> 137
<211> 109
<212> DNA
<213> Plasmodium vivax

<400> 137
cgccgggttg gtcacgcggt ccattcgccc caggctggtt gtctgcacca ttggcgcttg 60
gttgatcccc cgcgcggttt gtcgccggtt gattaccggc gccgttcgc 109

<210> 138
<211> 25
<212> PRT
<213> Plasmodium vivax

<400> 138
Ile Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala Ala Pro Gly Ala
1 5 10 15
Asn Gln Glu Gly Gly Ala Ala Glu Leu
20 25

<210> 139
<211> 75
<212> DNA
<213> Plasmodium vivax

<400> 139
aattgcgccg ggcgcceaacc aggaaggtgg ggctgcagcg ccaggagcca atcaagaagg 60
cggctgcagcg gagct 75

<210> 140
<211> 67
<212> DNA
<213> Plasmodium vivax

<400> 140
ccgctgcacc gccttcttga ttggctcctg gcgctgcagc cccaccttcc tggttggcgc 60
ccgcgcgc 67

<210> 147
<211> 8
<212> PRT
<213> Hepatitis B virus

<400> 147
Cys Val Val Thr Thr Glu Pro Leu
1 5

<210> 148
<211> 37
<212> DNA
<213> Hepatitis B virus

<400> 148
cgcaagctta ctagcaaaca acagtagtct ccggaag

37

<210> 149
<211> 7
<212> PRT
<213> Hepatitis B virus

<400> 149
Pro Leu Thr Ser Leu Ile Pro
1 5

<210> 150
<211> 32
<212> DNA
<213> Hepatitis B virus

<400> 150
cgcaagctta cggaagtgtt gataggatag gg

32

<210> 151
<211> 8
<212> PRT
<213> Hepatitis B virus

<400> 151
Thr Ser Leu Ile Pro Ala Asn Pro
1 5

<210> 152
<211> 34
<212> DNA
<213> Hepatitis B virus

<400> 152
cgcaagctta tgttgatagg ataggggcat ttgg

34

<210> 153
<211> 7
<212> PRT

<213> Hepatitis B virus

<400> 153

Leu Ile Pro Ala Asn Pro Pro

1 5

<210> 154

<211> 31

<212> DNA

<213> Hepatitis B virus

<400> 154

cgcaagctta taggataggg gcatttggtg g

31

<210> 155

<211> 6

<212> PRT

<213> Hepatitis B virus

<400> 155

Ile Pro Ala Asn Pro Pro

1 5

<210> 156

<211> 28

<212> DNA

<213> Hepatitis B virus

<400> 156

gcgaagctta gataggggca ttggtgg

28

<210> 157

<211> 6

<212> PRT

<213> Hepatitis B virus

<400> 157

Pro Ala Asn Pro Pro Arg

1 5

<210> 158

<211> 28

<212> DNA

<213> Hepatitis B virus

<400> 158

cgcaagctta aggggcattt ggtggtct

28

<210> 159

<211> 7

<212> PRT

<213> Hepatitis B virus

<400> 159

Cys Pro Ala Asn Pro Pro Arg

1 5

<210> 160
 <211> 7
 <212> PRT
 <213> Hepatitis B virus

<400> 160
 Ala Asn Pro Pro Arg Tyr Ala
 1 5

<210> 161
 <211> 31
 <212> DNA
 <213> Hepatitis B virus

<400> 161
 gcgaagctta gcaaggggca ttggtggtc t 31

<210> 162
 <211> 30
 <212> DNA
 <213> Hepatitis B virus

<400> 162
 gcgaagctta ggcatttggt ggtctatagc 30

<210> 163
 <211> 8
 <212> PRT
 <213> Hepatitis B virus

<400> 163
 Cys Ala Asn Pro Pro Arg Tyr Ala
 1 5

<210> 164
 <211> 32
 <212> DNA
 <213> Hepatitis B virus

<400> 164
 gcgaagctta gcaggcattt ggtggtctat aa 32

<210> 165
 <211> 7
 <212> PRT
 <213> Hepatitis B virus

<400> 165
 Asn Pro Pro Arg Tyr Ala Pro
 1 5

<210> 166

<211> 31
<212> DNA
<213> Hepatitis B virus

<400> 166
cgcaagctta atttggtggt ctataagctg g

31

<210> 167
<211> 8
<212> PRT
<213> Plasmodium falciparum

<400> 167
Asn Ala Asn Pro Asn Val Asp Pro
1 5

<210> 168
<211> 6
<212> PRT
<213> Homo sapiens

<400> 168
Asn Tyr Lys Lys Pro Lys
1 5

<210> 169
<211> 7
<212> PRT
<213> Hepatitis B virus

<400> 169
Lys Arg Gly Pro Arg Thr His
1 5

<210> 170
<211> 21
<212> PRT
<213> Homo sapiens

<400> 170
Leu His Pro Asp Glu Thr Lys Asn Met Leu Glu Met Ile Phe Thr Pro
1 5 10 15
Arg Asn Ser Asp Arg
20

<210> 171
<211> 5
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 171
Arg Ile Lys Gln Ile
1 5

<210> 172
 <211> 11
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 172
 Arg Ile Lys Gln Ile Gly Met Pro Gly Gly Lys
 1 5 10

<210> 173
 <211> 10
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 173
 Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu
 1 5 10

<210> 174
 <211> 14
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 174
 Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp
 1 5 10

<210> 175
 <211> 33
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 175
 Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His
 1 5 10 15
 Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile
 20 25 30

Leu

<210> 176
 <211> 16
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 176
 His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg
 1 5 10 15

<210> 177
 <211> 36
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 177

Tyr Thr His Ile Ile Tyr Ser Leu Ile Glu Gln Ser Gln Asn Gln Gln
1 5 10 15

Glu Lys Asn Glu Gln Glu Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu
20 25 30

Trp Asn Trp Phe
35

<210> 178

<211> 26

<212> PRT

<213> Human immunodeficiency virus type 1

<400> 178

Tyr Thr His Ile Ile Tyr Ser Leu Ile Glu Gln Ser Gln Asn Gln Gln
1 5 10 15

Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu
20 25

<210> 179

<211> 19

<212> PRT

<213> Homo sapiens

<400> 179

Gly Arg Glu Arg Arg Pro Arg Leu Ser Asp Arg Pro Gln Leu Pro Tyr
1 5 10 15

Leu Glu Ala

<210> 180

<211> 20

<212> PRT

<213> Homo sapiens

<400> 180

Arg Glu Gln Arg Arg Phe Ser Val Ser Thr Leu Arg Asn Leu Gly Leu
1 5 10 15

Gly Lys Lys Ser
20

<210> 181

<211> 18

<212> PRT

<213> Plasmodium yoelii

<400> 181

Pro Asn Lys Leu Pro Arg Ser Thr Ala Val Val His Gln Leu Lys Arg
1 5 10 15

Lys His

<210> 182
<211> 11
<212> PRT
<213> Plasmodium yoelii

<400> 182
Thr Ala Val Val His Gln Leu Lys Arg Lys His
1 5 10

<210> 183
<211> 22
<212> PRT
<213> Plasmodium vivax

<400> 183
Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Ala
1 5 10 15

Ala Gly Gln Pro Ala Gly
20

<210> 184
<211> 12
<212> PRT
<213> Avian leukosis virus

<400> 184
Asn Gln Ser Trp Thr Met Val Ser Pro Ile Asn Val
1 5 10

<210> 185
<211> 16
<212> PRT
<213> Avian leukosis virus

<400> 185
Met Ile Lys Asn Gly Thr Lys Arg Thr Ala Val Thr Phe Gly Ser Val
1 5 10 15

<210> 186
<211> 19
<212> PRT
<213> Foot-and-mouth disease virus

<400> 186
Pro Asn Leu Arg Gly Asp Leu Gln Val Leu Ala Gln Lys Val Ala Arg
1 5 10 15

Thr Leu Pro

<210> 187
<211> 26
<212> PRT

<213> Foot-and-mouth disease virus

<400> 187

Arg Tyr Asn Arg Asn Ala Val Pro Asn Leu Arg Gly Asp Leu Gln Val
1 5 10 15

Leu Ala Gln Lys Val Ala Arg Thr Leu Pro
20 25

<210> 188

<211> 17

<212> PRT

<213> Hepatitis C virus

<400> 188

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15

Leu

<210> 189

<211> 34

<212> PRT

<213> Hepatitis B virus

<400> 189

Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro Arg Arg
1 5 10 15

Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg Glu Ser
20 25 30

Gln Cys

<210> 190

<211> 16

<212> PRT

<213> Hepatitis B virus

<400> 190

Gly Ile Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Val Val Ser
1 5 10 15

<210> 191

<211> 17

<212> PRT

<213> Hepatitis B virus

<400> 191

Gly Ile Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Val Val Ser
1 5 10 15

Cys

<210> 192
 <211> 20
 <212> PRT
 <213> Plasmodium falciparum

<400> 192
 Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro
 1 5 10 15
 Cys Ser Val Thr
 20

<210> 193
 <211> 9
 <212> PRT
 <213> Plasmodium vivax

<220>
 <221> MOD_RES
 <222> (4)
 <223> Xaa at position 4 represents A or D

<400> 193
 Asp Arg Ala Xaa Gly Gln Pro Ala Gly
 1 5

<210> 194
 <211> 9
 <212> PRT
 <213> Plasmodium vivax

<220>
 <221> MOD_RES
 <222> (5)
 <223> Xaa at position 5 represents G or D

<400> 194
 Ala Asn Gly Ala Xaa Asx Gln Pro Gly
 1 5

<210> 195
 <211> 11
 <212> PRT
 <213> Plasmodium vivax

<400> 195
 Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala
 1 5 10

<210> 196
 <211> 19
 <212> PRT
 <213> Plasmodium vivax

<400> 196
 Tyr Leu Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp Thr Pro Cys

1	5	10	15
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Ser Val Thr

<210> 197
 <211> 21
 <212> PRT
 <213> Plasmodium vivax

<400> 197
 Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Ala
 1 5 10 15

Gly Gln Pro Ala Gly
 20

<210> 198
 <211> 18
 <212> PRT
 <213> Plasmodium vivax

<400> 198
 Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro
 1 5 10 15

Ala Gly

<210> 199
 <211> 36
 <212> PRT
 <213> Plasmodium vivax

<400> 199
 Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
 1 5 10 15

Pro Gly Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp
 20 25 30

Asp Gln Pro Gly
 35

<210> 200
 <211> 18
 <212> PRT
 <213> Plasmodium vivax

<400> 200
 Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
 1 5 10 15

Pro Gly

<210> 201
 <211> 19
 <212> PRT
 <213> Plasmodium vivax

<400> 201
 Gln Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp
 1 5 10 15

Gln Pro Gly

<210> 202
 <211> 22
 <212> PRT
 <213> Plasmodium vivax

<400> 202
 Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala Ala Pro Gly Ala Asn
 1 5 10 15

Gln Glu Gly Gly Ala Ala
 20

<210> 203
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with an NcoI restriction site

<400> 203
 ttgggccatg gacatcgacc cttat 24

<210> 204
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with an EcoRI restriction site.

<400> 204
 gcggagctct ttttccaaat taattaacac ccac 34

<210> 205
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with EcoRI and SacI restriction
 sites and an inserted lysine codon

<400> 205
cgcgagctcg atccagcgtc tagagagacc 30

<210> 206
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Hepatitis B
virus PCR primer with HindIII restriction site

<400> 206
cgcaagctta aacaacagta gtctccggaa g 31

<210> 207
<211> 14
<212> PRT
<213> Hepatitis B virus

<400> 207
Cys Gln Glu Lys Gln Leu Asp Glu Asn Ala Asn Val Gln Leu
1 5 10

<210> 208
<211> 13
<212> PRT
<213> Hepatitis B virus

<400> 208
Cys Ser Lys Lys Gly Pro Arg Ala Ser Gly Asn Leu Ile
1 5 10

<210> 209
<211> 21
<212> PRT
<213> Hepatitis B virus

<400> 209
Cys Leu Leu Thr Glu His Arg Met Thr Trp Asp Pro Ala Gln Pro Pro
1 5 10 15
Arg Asp Leu Thr Glu
20

<210> 210
<211> 22
<212> PRT
<213> Hepatitis B virus

<400> 210
Cys Val Lys Arg Met Lys Glu Ser Arg Leu Glu Asp Thr Gln Lys His
1 5 10 15

Arg Val Asp Phe Leu Gln

<210> 211
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Cytochrome
 P-450 fragment

<400> 211
 Cys Met Gln Leu Arg Ser
 1 5

<210> 212
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Cytochrome
 P-450 fragment

<400> 212
 Cys Arg Phe Ser Ile Asn
 1 5

<210> 213
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Cytochrome
 P-450 fragment

<400> 213
 Cys Ala Val Pro Arg
 1 5

<210> 214
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Cytochrome
 P-450 fragment

<400> 214
 Cys Val Ile Pro Arg Ser
 1 5

<210> 215
 <211> 5

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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
      P-450 fragment

<400> 215
Cys Phe Ile Pro Val
  1               5

<210> 216
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
      P-450 fragment

<400> 216
Cys Thr Val Ser Gly Ala
  1               5

<210> 217
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
      P-450 fragment

<400> 217
Cys Thr Leu Ser Gly Glu
  1               5

<210> 218
<211> 20
<212> PRT
<213> Hepatitis B virus

<400> 218
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Val
  1               5               10               15
Val Ser Tyr Val
      20

<210> 219
<211> 63
<212> DNA
<213> Hepatitis B virus

<400> 219
gctacctggg tgggtgttaa tttggaagat ccagcgtcta gagacctagt agtcagttat 60
gtc                                                63

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<210> 220
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 75 of Hepatitis B core

<400> 220
Thr Trp Val Gly Val Lys Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 221
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc- K75 mutant

<400> 221
gctacctggg tgggtgttaa aaatttgga gatccagcgt c 41

<210> 222
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 76 of Hepatitis B core

<400> 222
Thr Trp Val Gly Val Asn Lys Leu Glu Asp Pro Ala Ser Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 223
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K76 mutant

<400> 223
ttaataaatt ggaagatcca gcgtcta 27

<210> 224
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
position 77 of Hepatitis B virus core

<400> 224
Thr Trp Val Gly Val Asn Leu Lys Glu Asp Pro Ala Ser Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 225
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K77 mutant

<400> 225
ttaatttgaa agaagatcca gcgtcta 27

<210> 226
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 78 of Hepatitis B core

<400> 226
Thr Trp Val Gly Val Asn Leu Glu Lys Asp Pro Ala Ser Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 227
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K78 mutant

<400> 227
ttaatttgga aaaagatcca gcgtctagag ac 32

<210> 228
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 79 fo Hepatitis B core.

<400> 228
Thr Trp Val Gly Val Asn Leu Glu Asp Lys Pro Ala Ser Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 229
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K79 mutant

<400> 229
ttaatttggga agataaacca gcgtctagag acctag 36

<210> 230
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 79 of Hepatitis B core

<400> 230
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Lys Ala Ser Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 231
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K80 mutant

<400> 231
ttaatttggga agatccaaaa gcgtctagag acctagtag 39

<210> 232

<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 81 of Hepatitis B core

<400> 232
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Lys Ser Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 233
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K81 mutant

<400> 233
ttaatttgga agatccagcg aaatctagag acctagtagt cag 43

<210> 234
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 82 of Hepatitis B core

<400> 234
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Lys Arg Asp Leu
1 5 10 15
Val Val Ser Tyr Val
20

<210> 235
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K82 mutant

<400> 235
ttaatttgga agatccagcg tctaaaagag acctagtagt cagtt 45

<210> 236
<211> 21

<212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: K inserted at
 amino acid position 83 to Hepatitis B core

 <400> 236
 Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Lys Asp Leu
 1 5 10 15
 Val Val Ser Tyr Val
 20

 <210> 237
 <211> 50
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Lysine codon
 aaa inserted to make HBc-K83 mutant

 <400> 237
 ttaatttgga agatccagcg tctagaaaag acctagtagt cagttatgtc 50

 <210> 238
 <211> 21
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: K inserted at
 amino acid position 83 of Hepatitis B core

 <400> 238
 Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Lys Leu
 1 5 10 15
 Val Val Ser Tyr Val
 20

 <210> 239
 <211> 50
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Lysine codon
 aaa inserted to make HBc-K84 mutant

 <400> 239
 ttaatttgga agatccagcg tctagagaca aactagtagt cagttatgtc 50

 <210> 240
 <211> 21
 <212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: K inserted at
amino acid position 85 of Hepatitis B core

<400> 240

Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Lys
1 5 10 15

Val Val Ser Tyr Val
20

<210> 241

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K85 mutant

<400> 241

ctcgagagac ctaaaagtag tcagttatgt c 31

<210> 242

<211> 36

<212> PRT

<213> Hepatitis B virus

<400> 242

Gly Ile Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser
1 5 10 15

Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn
20 25 30

Glu Gln Glu Leu
35

<210> 243

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: human
cytochrome P450

<400> 243

aatttgatg tgggaagatc gtgagatcaa caattatacc agcctgatac attctttaat 60
tgaagagtcc cagaaccaac aggagaaaaa tgaacaagag ct 102

<210> 244

<211> 94

<212> DNA

<213> Hepatitis B virus

<400> 244
 cttgttcatt tttctcctgt tggttctggg actcttcaat taaagaatgt atcaggctgg 60
 tataattggt gatctcacga tcttcccaca tcca 94

<210> 245
 <211> 6
 <212> PRT
 <213> Hepatitis B virus

<400> 245
 Met Asp Ile Asp Pro Tyr
 1 5

<210> 246
 <211> 217
 <212> PRT
 <213> *Spermophilus variegatus*

<400> 246
 Met Tyr Leu Phe His Leu Cys Leu Val Phe Ala Cys Val Pro Cys Pro
 1 5 10 15
 Thr Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp
 20 25 30
 Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu Asn Phe
 35 40 45
 Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp Thr Ala
 50 55 60
 Ala Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys Ser Pro
 65 70 75 80
 His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Glu Glu Leu Thr
 85 90 95
 Arg Leu Ile Thr Trp Met Ser Glu Asn Thr Thr Glu Glu Val Arg Arg
 100 105 110
 Ile Ile Val Asp His Val Asn Asn Thr Trp Gly Leu Lys Val Arg Gln
 115 120 125
 Thr Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln His Thr Val
 130 135 140
 Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Ala Pro
 145 150 155 160
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu His Thr
 165 170 175
 Val Ile Arg Arg Arg Gly Gly Ser Arg Ala Ala Arg Ser Pro Arg Arg
 180 185 190
 Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg
 195 200 205

Arg Ser Gln Ser Pro Ala Ser Asn Cys
 210 215

<210> 247
 <211> 183
 <212> PRT
 <213> Hepatitis B virus

<400> 247
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
 65 70 75 80
 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
 85 90 95
 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
 100 105 110
 Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 130 135 140
 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
 145 150 155 160
 Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
 165 170 175
 Gln Ser Arg Glu Ser Gln Cys
 180

<210> 248
 <211> 185
 <212> PRT
 <213> Hepatitis B virus

<400> 248
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Gln Asp Pro Ala
 65 70 75 80
 Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys
 85 90 95
 Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
 100 105 110
 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 130 135 140
 Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg
 145 150 155 160
 Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg
 165 170 175
 Arg Ser Gln Ser Arg Glu Ser Gln Cys
 180 185

<210> 249
 <211> 185
 <212> PRT
 <213> Hepatitis B virus

<400> 249
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala
 65 70 75 80
 Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Val Gly Leu Lys
 85 90 95
 Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
 100 105 110
 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 130 135 140

Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg
 145 150 155 160

Arg Thr Pro Ser Pro Arg Arg Arg Pro Ser Gln Ser Pro Arg Arg Arg
 165 170 175

Arg Ser Gln Ser Arg Glu Ser Gln Cys
 180 185

<210> 250

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 250

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30

Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
 35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp
 50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala
 65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys
 85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
 100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
 145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
 165 170 175

Gln Ser Arg Glu Ser Gln Cys
 180

<210> 251

<211> 183

<212> PRT

<213> Marmota monax

<400> 251

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu

1		5		10		15									
Asn	Phe	Leu	Pro	Leu	Asp	Phe	Phe	Pro	Asp	Leu	Asn	Ala	Leu	Val	Asp
		20						25					30		
Thr	Ala	Thr	Ala	Leu	Tyr	Glu	Glu	Glu	Leu	Thr	Gly	Arg	Glu	His	Cys
		35					40					45			
Ser	Pro	His	His	Thr	Ala	Ile	Arg	Gln	Ala	Leu	Val	Cys	Trp	Asp	Glu
	50					55					60				
Leu	Thr	Lys	Leu	Ile	Ala	Trp	Met	Ser	Ser	Asn	Ile	Thr	Ser	Glu	Gln
65					70					75					80
Val	Arg	Thr	Ile	Ile	Val	Asn	His	Val	Asn	Asp	Thr	Trp	Gly	Leu	Lys
			85						90					95	
Val	Arg	Gln	Ser	Leu	Trp	Phe	His	Leu	Ser	Cys	Leu	Thr	Phe	Gly	Gln
		100						105					110		
His	Thr	Val	Gln	Glu	Phe	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr
		115					120					125			
Pro	Ala	Pro	Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro
	130					135					140				
Glu	His	Thr	Val	Ile	Arg	Arg	Arg	Gly	Gly	Ala	Arg	Ala	Ser	Arg	Ser
145					150					155					160
Pro	Arg	Arg	Arg	Thr	Pro	Ser	Pro	Arg	Arg	Arg	Arg	Ser	Gln	Ser	Pro
				165					170				175		
Arg	Arg	Arg	Arg	Ser	Gln	Cys									
				180											

<210> 252
 <211> 26
 <212> PRT
 <213> Bos taurus

<400> 252
Ser Thr Pro Pro Leu Pro Trp Pro Trp Ser Pro Ala Ala Leu Arg Leu
1 5 10 15
Leu Gln Arg Pro Pro Glu Glu Pro Ala Ala
20 25

<210> 253
 <211> 17
 <212> PRT
 <213> Ebola virus

<400> 253
Ala Thr Gln Val Glu Gln His His Arg Arg Thr Asp Asn Asp Ser Thr
1 5 10 15
Ala

<210> 254
<211> 17
<212> PRT
<213> Ebola virus

<400> 254
His Asn Thr Pro Val Tyr Lys Leu Asp Ile Ser Glu Ala Thr Gln Val
1 5 10 15
Glu

<210> 255
<211> 17
<212> PRT
<213> Ebola virus

<400> 255
Gly Lys Leu Gly Leu Ile Thr Asn Thr Ile Ala Gly Val Ala Val Leu
1 5 10 15
Ile

<210> 256
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:flexible linker
arm

<400> 256
Gly Gly Gly Gly Ser Gly Gly Gly Gly Thr
1 5 10

<210> 257
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: flexible
linker arm

<400> 257
Gly Gly Gly Gly Ser Gly Gly Gly Gly
1 5

<210> 258
<211> 513
<212> DNA
<213> Plasmodium falciparum

<220>

<221> CDS

<222> (1)..(507)

<400> 258

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atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc      48
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
  1              5              10              15

tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat      96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
              20              25              30

acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt      144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
              35              40              45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa      192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
              50              55              60

cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att      240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
              65              70              75              80

aac gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg      288
Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
              85              90              95

gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat      336
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
              100              105              110

atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc      384
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
              115              120              125

act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg      432
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
              130              135              140

tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta      480
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
              145              150              155              160

tca aca ctt ccg gag act act gtt gtt tagtaa      513
Ser Thr Leu Pro Glu Thr Thr Val Val
              165
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<210> 259

<211> 169

<212> PRT

<213> Plasmodium falciparum

<400> 259

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Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
  1              5              10              15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
              20              25              30
```

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80
 Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
 85 90 95
 Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 100 105 110
 Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 115 120 125
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 130 135 140
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 145 150 155 160
 Ser Thr Leu Pro Glu Thr Thr Val Val
 165

<210> 260
 <211> 513
 <212> DNA
 <213> Plasmodium falciparum

<220>
 <221> CDS
 <222> (1)..(507)

<400> 260
 atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gga att aac 240
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Gly Ile Asn
 65 70 75 80
 gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg gag 288
 Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Glu

85										90					95					
ctc	gat	cca	gcg	tct	aga	gac	cta	gta	gtc	agt	tat	gtc	aac	act	aat	336				
Leu	Asp	Pro	Ala	Ser	Arg	Asp	Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn					
			100					105					110							
atg	ggc	cta	aag	ttc	agg	caa	ctc	ttg	tgg	ttt	cac	att	tct	tgt	ctc	384				
Met	Gly	Leu	Lys	Phe	Arg	Gln	Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu					
		115					120					125								
act	ttt	gga	aga	gaa	aca	ggt	ata	gag	tat	ttg	gtg	tct	ttc	gga	gtg	432				
Thr	Phe	Gly	Arg	Glu	Thr	Val	Ile	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val					
	130					135					140									
tgg	att	cgc	act	cct	cca	gct	tat	aga	cca	cca	aat	gcc	cct	atc	cta	480				
Trp	Ile	Arg	Thr	Pro	Pro	Ala	Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu					
145					150				155						160					
tca	aca	ctt	ccg	gag	act	act	ggt	ggt	tagtaa							513				
Ser	Thr	Leu	Pro	Glu	Thr	Thr	Val	Val												
				165																

<210> 261
 <211> 169
 <212> PRT
 <213> Plasmodium falciparum

<400> 261

Met	Asp	Ile	Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu
1				5					10					15	
Ser	Phe	Leu	Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp
			20					25					30		
Thr	Ala	Ser	Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys
		35					40					45			
Ser	Pro	His	His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu
	50					55					60				
Leu	Met	Thr	Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Gly	Ile	Asn
65					70					75					80
Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Glu
				85					90					95	
Leu	Asp	Pro	Ala	Ser	Arg	Asp	Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn
			100					105					110		
Met	Gly	Leu	Lys	Phe	Arg	Gln	Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu
		115					120					125			
Thr	Phe	Gly	Arg	Glu	Thr	Val	Ile	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val
	130					135					140				
Trp	Ile	Arg	Thr	Pro	Pro	Ala	Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu
145					150					155					160
Ser	Thr	Leu	Pro	Glu	Thr	Thr	Val	Val							
				165											

<210> 262
 <211> 519
 <212> DNA
 <213> Plasmodium falciparum

<220>
 <221> CDS
 <222> (1)..(519)

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<400> 262
atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
  1             5             10             15

tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
             20             25             30

acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
             35             40             45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
             50             55             60

cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat cca gcg 240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
             65             70             75             80

tct aga gac cta gta gtc agt tat gtc aac act aat atg ggc cta aag 288
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
             85             90             95

ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc act ttt gga aga 336
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
             100            105            110

gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg tgg att cgc act 384
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
             115            120            125

cct cca gct tat aga cca cca aat gcc cct atc cta tca aca ctt ccg 432
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
             130            135            140

gag act act gtt gtt gga att gaa tat ctg aac aaa atc cag aac tct 480
Glu Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser
             145            150            155            160

ctg tcc acc gaa tgg tct ccg tgc tcc gtt acc tag taa 519
Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
             165            170

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<210> 263
 <211> 171
 <212> PRT

<213> Plasmodium falciparum

<400> 263

Met	Asp	Ile	Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu		
1				5					10					15			
Ser	Phe	Leu	Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp		
			20					25					30				
Thr	Ala	Ser	Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys		
		35					40					45					
Ser	Pro	His	His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu		
	50					55				60							
Leu	Met	Thr	Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Pro	Ala		
65					70				75					80			
Ser	Arg	Asp	Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys		
			85						90				95				
Phe	Arg	Gln	Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg		
		100					105						110				
Glu	Thr	Val	Ile	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr		
	115					120						125					
Pro	Pro	Ala	Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro		
	130				135					140							
Glu	Thr	Thr	Val	Val	Gly	Ile	Glu	Tyr	Leu	Asn	Lys	Ile	Gln	Asn	Ser		
145					150				155						160		
Leu	Ser	Thr	Glu	Trp	Ser	Pro	Cys	Ser	Val	Thr							
				165					170								

<210> 264

<211> 516

<212> DNA

<213> Plasmodium falciparum

<220>

<221> CDS

<222> (1)..(516)

<400> 264

atg	gac	atc	gac	cct	tat	aaa	gaa	ttt	gga	gct	act	gtg	gag	tta	ctc		48
Met	Asp	Ile	Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu		
1				5					10					15			
tcg	ttt	ttg	cct	tct	gac	ttc	ttt	cct	tca	gta	cga	gat	ctt	cta	gat		96
Ser	Phe	Leu	Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp		
			20					25					30				
acc	gcc	tca	gct	ctg	tat	cgg	gaa	gcc	tta	gag	tct	cct	gag	cat	tgt		144
Thr	Ala	Ser	Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys		
		35					40					45					
tca	cct	cac	cat	act	gca	ctc	agg	caa	gca	att	ctt	tgc	tgg	ggg	gaa		192
Ser	Pro	His	His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu		
	50					55				60							
cta	atg	act	cta	gct	acc	tgg	gtg	ggg	gtt	aat	ttg	gaa	gat	gga	att		240
Leu	Met	Thr	Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Gly	Ile		
65					70				75						80		
aac	gct	aat	ccg	aac	gct	aat	ccg	aac	gct	aat	ccg	aac	gct	aat	ccg		288
Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro		
				85					90						95		

gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat	336
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn	
100 105 110	
atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc	384
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu	
115 120 125	
act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg	432
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val	
130 135 140	
tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta	480
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu	
145 150 155 160	
tca aca ctt ccg gag act act gtt gtt tgc tag taa	516
Ser Thr Leu Pro Glu Thr Thr Val Val Cys	
165 170	

<210> 265
 <211> 170
 <212> PRT
 <213> Plasmodium falciparum

<400> 265	
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu	
1 5 10 15	
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp	
20 25 30	
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys	
35 40 45	
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu	
50 55 60	
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile	
65 70 75 80	
Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro	
85 90 95	
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn	
100 105 110	
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu	
115 120 125	
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val	
130 135 140	
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu	
145 150 155 160	
Ser Thr Leu Pro Glu Thr Thr Val Val Cys	
165 170	

<210> 266
 <211> 579
 <212> DNA
 <213> Plasmodium falciparum

<220>
 <221> CDS
 <222> (1)..(579)

<400> 266
atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att 240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
65 70 75 80

aac gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg 288
Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
85 90 95

gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat 336
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
100 105 110

atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc 384
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
115 120 125

act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg 432
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
130 135 140

tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta 480
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
145 150 155 160

tca aca ctt ccg gag act act gtt gtt gga att gaa tat ctg aac aaa 528
Ser Thr Leu Pro Glu Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys
165 170 175

atc cag aac tct ctg tcc acc gaa tgg tct ccg tgc tcc gtt acc tag 576
Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
180 185 190

taa 579

<210> 267
<211> 191
<212> PRT
<213> Plasmodium falciparum

<400> 267
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu

1				5					10					15			
Ser	Phe	Leu	Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp		
			20					25					30				
Thr	Ala	Ser	Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys		
		35					40					45					
Ser	Pro	His	His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu		
	50					55					60						
Leu	Met	Thr	Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Gly	Ile		
	65				70					75					80		
Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro		
				85					90					95			
Glu	Leu	Pro	Ala	Ser	Arg	Asp	Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn		
			100					105					110				
Met	Gly	Leu	Lys	Phe	Arg	Gln	Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu		
	115					120						125					
Thr	Phe	Gly	Arg	Glu	Thr	Val	Ile	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val		
	130				135						140						
Trp	Ile	Arg	Thr	Pro	Pro	Ala	Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu		
	145			150						155					160		
Ser	Thr	Leu	Pro	Glu	Thr	Thr	Val	Val	Gly	Ile	Glu	Tyr	Leu	Asn	Lys		
				165					170					175			
Ile	Gln	Asn	Ser	Leu	Ser	Thr	Glu	Trp	Ser	Pro	Cys	Ser	Val	Thr			
			180					185					190				

<210> 268

<211> 591

<212> DNA

<213> Plasmodium falciparum

<220>

<221> CDS

<222> (1)..(591)

<400> 268

atg	gac	atc	gac	cct	tat	aaa	gaa	ttt	gga	gct	act	gtg	gag	tta	ctc	48
Met	Asp	Ile	Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	
1				5				10					15			
tcg	ttt	ttg	cct	tct	gac	ttc	ttt	cct	tca	gta	cga	gat	ctt	cta	gat	96
Ser	Phe	Leu	Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp	
			20					25					30			
acc	gcc	tca	gct	ctg	tat	cgg	gaa	gcc	tta	gag	tct	cct	gag	cat	tgt	144
Thr	Ala	Ser	Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	
		35				40					45					
tca	cct	cac	cat	act	gca	ctc	agg	caa	gca	att	ctt	tgc	tgg	ggg	gaa	192
Ser	Pro	His	His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	
	50					55					60					
cta	atg	act	cta	gct	acc	tgg	gtg	ggt	gtt	aat	ttg	gaa	gat	gga	att	240
Leu	Met	Thr	Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Gly	Ile	
	65				70				75						80	
aac	gcg	aat	ccg	aac	gtg	gat	ccg	aat	gcc	aac	cct	aac	gcc	aac	cca	288
Asn	Ala	Asn	Pro	Asn	Val	Asp	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	
				85					90					95		
aat	gcg	aac	cca	gag	ctc	cca	gcg	tct	aga	gac	cta	gta	gtc	agt	tat	336

Asn	Ala	Asn	Pro	Glu	Leu	Pro	Ala	Ser	Arg	Asp	Leu	Val	Val	Ser	Tyr		
			100					105					110				
gtc	aac	act	aat	atg	ggc	cta	aag	ttc	agg	caa	ctc	ttg	tgg	ttt	cac	384	
Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Phe	Arg	Gln	Leu	Leu	Trp	Phe	His		
		115					120				125						
att	tct	tgt	ctc	act	ttt	gga	aga	gaa	aca	ggt	ata	gag	tat	ttg	gtg	432	
Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg	Glu	Thr	Val	Ile	Glu	Tyr	Leu	Val		
	130					135				140							
tct	ttc	gga	gtg	tgg	att	cgc	act	cct	cca	gct	tat	aga	cca	cca	aat	480	
Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr	Pro	Pro	Ala	Tyr	Arg	Pro	Pro	Asn		
145					150					155					160		
gcc	cct	atc	cta	tca	aca	ctt	ccg	gag	act	act	ggt	ggt	gga	att	gaa	528	
Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro	Glu	Thr	Thr	Val	Val	Gly	Ile	Glu		
				165				170					175				
tat	ctg	aac	aaa	atc	cag	aac	tct	ctg	tcc	acc	gaa	tgg	tct	ccg	tgc	576	
Tyr	Leu	Asn	Lys	Ile	Gln	Asn	Ser	Leu	Ser	Thr	Glu	Trp	Ser	Pro	Cys		
		180					185						190				
tcc	ggt	acc	tag	taa												591	
Ser	Val	Thr															
		195															

<210> 269

<211> 195

<212> PRT

<213> Plasmodium falciparum

<400> 269

Met	Asp	Ile	Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu		
1				5					10					15			
Ser	Phe	Leu	Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp		
			20					25					30				
Thr	Ala	Ser	Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys		
		35				40						45					
Ser	Pro	His	His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu		
	50					55					60						
Leu	Met	Thr	Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Gly	Ile		
65					70				75						80		
Asn	Ala	Asn	Pro	Asn	Val	Asp	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro		
				85					90					95			
Asn	Ala	Asn	Pro	Glu	Leu	Pro	Ala	Ser	Arg	Asp	Leu	Val	Val	Ser	Tyr		
			100					105					110				
Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Phe	Arg	Gln	Leu	Leu	Trp	Phe	His		
	115						120				125						
Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg	Glu	Thr	Val	Ile	Glu	Tyr	Leu	Val		
	130					135				140							
Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr	Pro	Pro	Ala	Tyr	Arg	Pro	Pro	Asn		
145					150					155					160		
Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro	Glu	Thr	Thr	Val	Val	Gly	Ile	Glu		
				165					170					175			
Tyr	Leu	Asn	Lys	Ile	Gln	Asn	Ser	Leu	Ser	Thr	Glu	Trp	Ser	Pro	Cys		
		180					185						190				
Ser	Val	Thr															
		195															

<210> 270
 <211> 561
 <212> DNA
 <213> Human immunodeficiency virus type 1

<220>
 <221> CDS
 <222> (1)..(561)

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<400> 270
atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc      48
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
   1               5               10               15

tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat      96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
               20               25               30

acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt      144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
               35               40               45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa      192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
   50               55               60

cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att      240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
   65               70               75               80

caa tgg atg gaa tgg gat cgt gag atc aac aat tat acc agc ctg ata      288
Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile
               85               90               95

cat tct tta att gaa gag tcc cag aac caa cag gag aaa aat gaa caa      336
His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln
               100              105              110

gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat      384
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
               115              120              125

atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc      432
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
               130              135              140

act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg      480
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
               145              150              155              160

tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta      528
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
               165              170              175

tca aca ctt ccg gag act act gtt gtt tag taa      561
Ser Thr Leu Pro Glu Thr Thr Val Val
               180              185

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<210> 271
 <211> 185
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 271
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80
 Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile
 85 90 95
 His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln
 100 105 110
 Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 115 120 125
 Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 130 135 140
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 145 150 155 160
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 165 170 175
 Ser Thr Leu Pro Glu Thr Thr Val Val
 180 185

<210> 272
 <211> 564
 <212> DNA
 <213> Human immunodeficiency virus type 1

<220>
 <221> CDS
 <222> (1)..(564)

<400> 272
 atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att 240
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile

65	70	75	80	
caa tgg atg gaa tgg gat cgt gag atc aac aat tat acc agc ctg ata				288
Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile	85	90	95	
cat tct tta att gaa gag tcc cag aac caa cag gag aaa aat gaa caa				336
His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln	100	105	110	
gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat				384
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn	115	120	125	
atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc				432
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu	130	135	140	
act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg				480
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val	145	150	155	160
tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta				528
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu	165	170	175	
tca aca ctt ccg gag act act gtt gtt tgc tag taa				564
Ser Thr Leu Pro Glu Thr Thr Val Val Cys	180	185		

<210> 273

<211> 186

<212> PRT

<213> Human immunodeficiency virus type 1

<400> 273

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu	1	5	10	15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp	20	25	30	
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys	35	40	45	
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu	50	55	60	
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile	65	70	75	80
Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile	85	90	95	
His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln	100	105	110	
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn	115	120	125	
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu	130	135	140	
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val	145	150	155	160
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu	165	170	175	
Ser Thr Leu Pro Glu Thr Thr Val Val Cys	180	185		

<210> 274
 <211> 651
 <212> DNA
 <213> *Spermophilus variegatus*

<400> 274
 atgtatcttt ttcacctgtg ccttggtttt gcctgtgttc catgtcctac tgttcaagcc 60
 tccaagctgt gccttggatg gctttgggac atggacatag atccctataa agaatttggg 120
 tcttcttatac agttgttgaa ttttcttctt ttggactttt ttcctgatct caatgcattg 180
 gtggacactg ctgctgctct ttatgaagaa gaattaacag gtagggagca ttgttctcct 240
 catcatactg ctattagaca ggccttagtg tgttggaag aattaactag attaattaca 300
 tggatgagtg aaaatacaac agaagaagtt agaagaatta ttgttgatca tgtcaataat 360
 acttgggggac ttaaagtaag acagacttta tgggttcatt tatcatgtct tacttttgga 420
 caacacacag ttcaagaatt tttggttagt tttggagtat ggattagaac tccagctcct 480
 tatagaccac ctaatgcacc cattttatca actcttccgg aacatacagt cattaggaga 540
 agaggagggt caagagctgc taggtcccc cgaagacgca ctccctctcc tcgcaggaga 600
 aggtctcaat caccgcgtcg cagacgctct caatctccag cttccaactg c 651

<210> 275
 <211> 549
 <212> DNA
 <213> *Hepatitis B virus*

<400> 275
 atggacatcg acccttataa agaatttggg gctactgtgg agttactctc gtttttgcct 60
 tctgacttct ttccttcagt acgagatctt ctagataccg cctcagctct gtatcgaggaa 120
 gccttagagt ctcttgagca ttgttcacct caccatactg cactcaggca agcaattctt 180
 tgctggggggg aactaatgac tctagctacc tgggtgggtg ttaatttggg agatccagcg 240
 tctagagacc tagtagtcag ttatgtcaac actaatatgg gcctaaagtt caggcaactc 300
 ttgtgggtttc acatttcttg tctcactttt ggaagagaaa cagttataga gtatttgggtg 360
 tcttttcggag tgtggattcg cactcctcca gcttatagac caccaaagtc ccctatccta 420
 tcaacacttc cggagactac tgttggttaga cgacgaggca ggtcccctag aagaagaact 480
 ccctcgccctc gcagacgaag gtctcaatcg ccgcgtcgca gaagatctca atctcgggaa 540
 tctcaatgt 549

<210> 276
 <211> 555
 <212> DNA
 <213> *Hepatitis B virus*

<400> 276
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 gccttagagt ctcttgagca ttgttcacct caccatactg cactcaggca agccattctc 180
 tgctggggggg aattgatgac tctagctacc tgggtgggtg ataatttgca agatccagca 240
 tccagagatc tagtagtcaa ttatgttaat actaatatgg gtttaaagat caggcaacta 300
 ttgtgggtttc atatatcttg ccttactttt ggaagagaga ctgtacttga atatttgggtc 360
 tcttttcggag tgtggattcg cactcctcca gcctatagac caccaaagtc ccctatccta 420
 tcaacacttc cggaaactac tgttggttaga cgacgggacc gaggcaggtc ccctagaaga 480
 agaactccct cgcctcgag acgcagatct caatcgccgc gtcgcagaag atctcaatct 540
 cgggaatctc aatgt 555

<210> 277
 <211> 555
 <212> DNA

<213> Hepatitis B virus

<400> 277

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gccttagagt ctcttgagca ttgctcacct caccatactg cactcaggca agccattctc 180
tgctgggggg aattgatgac tctagctacc tgggtgggta ataatttggg agatccagca 240
tctagggatc ttgtagtaaa ttatgttaat actaacgtgg gtttaaagat caggcaacta 300
ttgtggtttc atatatcttg ccttactttt ggaagagaga ctgtacttga atatttggtc 360
tctttcggag tgtggattcg cactcctcca gcctatagac caccaaagtc ccctatctta 420
tcaacacttc cggaaactac tgttggttaga cgacgggacc gaggcaggtc ccctagaaga 480
agaactccct cgctcgag acgcagatct ccacgcccgc gtcgcagaag atctcaatct 540
cggaatctc aatgt 555
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<210> 278

<211> 549

<212> DNA

<213> Hepatitis B virus

<400> 278

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tctgacttct ttccttccgt acgagatctt ctagataccg ccgcagctct gtatcgggat 120
gccttagagt ctcttgagca ttgttcacct caccatactg cactcaggca agcaattctt 180
tgctgggggag acttaatgac tctagctacc tgggtgggta ctaattttaga agatccagca 240
tctagggacc tagtagtcag ttatgtcaac actaatgtgg gcctaaagtt cagacaatta 300
ttgtggtttc acatttcttg tctcactttt ggaagagaaa cggttctaga gtatttggtg 360
tcttttggag tgtggattcg cactcctcca gcctatagac caccaaagtc ccctatctta 420
tcaacgcttc cggagactac tgttggttaga cgacgaggca ggtcccctag aagaagaact 480
ccctcgccct gcagacgaag atctcaatcg ccgcgtcgca gaagatctca atctcgggaa 540
tctcaatgt 549
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<210> 279

<211> 549

<212> DNA

<213> Marmota monax

<400> 279

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gaattttctt ctttggact tctttcctga tcttaatgct ttgggtggaca ctgctactgc 120
cttgtagtaa gaagaactaa caggtaggga acattgctct ccgcaccata cagctattag 180
acaagcttta gtatgctggg atgaattaac taaattgata gcttgatga gctctaaccat 240
aacttctgaa caagtaagaa caatcattgt aaatcatgtc aatgatacct ggggacttaa 300
ggtgagacaa agtttatggt ttcatttgtc atgtctcact ttcggacaac atacagttca 360
agaattttta gtaagttttg gagtatggat caggactcca gctccatata gacctcctaa 420
tgcacccatt ctctcgactc ttccggaaca tacagtcatt aggagaagag gaggtgcaag 480
agcttctagg tccccagaa gacgcactcc ctctcctcgc aggagaagat ctcaatcacc 540
gcgtcgag 549
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<210> 280

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: human
cytochrome P450

<400> 280

Gln Glu Lys Gln Leu Asp Glu Asn Ala Asn Val Gln Leu
 1 5 10

<210> 281
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: modified
 portion of Hepatitis B core

<400> 281
 Cys Val Val Thr Thr Glu Pro
 1 5

<210> 282
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:modified
 portion of Hepatitis B core

<400> 282
 gcaagcttac tattgaattc cgcaaacaac agtagtctcc gg 42

<210> 283
 <211> 26
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: modified
 portion of Hepatitis B core

<400> 283
 Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu
 1 5 10 15

Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
 20 25

<210> 284
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: modified
 portion of Hepatitis B core

<400> 284
 Thr Thr Val Val Cys Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser
 1 5 10 15

Leu Ser Thr Glu Trp Ser Pro Ala Ser Val Thr
 20 25

<210> 285
 <211> 51
 <212> DNA
 <213> plasmid pKK223

<400> 285
 ttcacacagg aaacagaatt cccgggggatc cgtcgacctg cagccaagct t 51

<210> 286
 <211> 38
 <212> DNA
 <213> plasmid pKK223

<400> 286
 ttcacataag gaggaaaaaa cattgggatc cgaagctt 38

<210> 287
 <211> 20
 <212> PRT
 <213> Plasmodium yoelii

<400> 287
 Glu Phe Val Lys Gln Ile Ser Ser Gln Leu Thr Glu Glu Trp Ser Gln
 1 5 10 15

Cys Ser Val Thr
 20

<210> 288
 <211> 14
 <212> PRT
 <213> Escherichia coli

<400> 288
 Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly Cys Asn
 1 5 10

<210> 289
 <211> 18
 <212> PRT
 <213> Escherichia coli

<400> 289
 Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly
 1 5 10 15

Cys Asn

<210> 290
 <211> 18
 <212> PRT

<213> Escherichia coli

<400> 290

Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly
1 5 10 15

Cys Asn

<210> 291

<211> 10

<212> PRT

<213> Influenza virus

<400> 291

Leu Ile Asp Ala Leu Leu Gly Asp Pro Cys
1 5 10

<210> 292

<211> 9

<212> PRT

<213> Influenza virus

<400> 292

Thr Leu Ile Asp Ala Leu Leu Gly Cys
1 5

<210> 293

<211> 42

<212> PRT

<213> Homo sapiens

<400> 293

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
20 25 30

Gly Leu Met Val Gly Gly Val Val Ile Ala
35 40

<210> 294

<211> 11

<212> PRT

<213> Homo sapiens

<400> 294

Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
1 5 10

<210> 295

<211> 33

<212> PRT

<213> Homo sapiens

<400> 295
 Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
 1 5 10 15
 Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
 20 25 30

Gly

<210> 296
 <211> 60
 <212> DNA
 <213> Homo sapiens

<400> 296
 aattgatgcg gaatttcgtc atgacagcgg ctatgaggtg caccatcaga aactggagct 60

<210> 297
 <211> 52
 <212> DNA
 <213> Homo sapiens

<400> 297
 ccagtttctg atggtgcacc tcatagccgc tgtcatgacg aaattccgca tc 52

<210> 298
 <211> 42
 <212> DNA
 <213> Homo sapiens

<400> 298
 aattgaagat gtcggttcta acaagggggc aattatcgag ct 42

<210> 299
 <211> 34
 <212> DNA
 <213> Homo sapiens

<400> 299
 cgataattgc ccccttgta gaaccgacat cttc 34

<210> 300
 <211> 82
 <212> DNA
 <213> Homo sapiens

<400> 300
 gcgggaattg atgcggaatt tcgtcatgac agcggctatg aggtgcacca tcagaaactg 60
 gttttctttg ccgaagatgt cg 82

<210> 301
 <211> 83
 <212> DNA
 <213> Homo sapiens

<400> 301
gcgagctcc gctatgacaa cccacccac cattaagccg ataattgcc ccttggttaga 60
accgacatct tcggcaaaga aaa 83

<210> 302
<211> 53
<212> DNA
<213> Homo sapiens

<400> 302
gcgagctcg ataattgcc ccttggttaga accgacatct tcggcaaaga aaa 53

<210> 303
<211> 31
<212> DNA
<213> Homo sapiens

<400> 303
gcgggaattc tggatgcgga atttcgtcat g 31

<210> 304
<211> 17
<212> DNA
<213> Homo sapiens

<400> 304
gcggagctcc gctatga 17

<210> 305
<211> 31
<212> DNA
<213> Homo sapiens

<400> 305
gcgggaattc tggatgcgga atttcgtcat g 31

<210> 306
<211> 18
<212> DNA
<213> Homo sapiens

<400> 306
gcggagctcg ataattgc 18

<210> 307
<211> 24
<212> PRT
<213> Haemophilus influenzae

<400> 307
Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
1 5 10 15

Cys Arg Cys Asn Asp Ser Ser Asp

<210> 308
 <211> 23
 <212> PRT
 <213> Haemophilus influenzae

<400> 308
 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
 1 5 10 15
 Arg Cys Asn Asp Ser Ser Asp
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<210> 309
 <211> 23
 <212> PRT
 <213> Haemophilus influenzae

<400> 309
 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Ala
 1 5 10 15
 Arg Ala Asn Asp Ser Ser Asp
 20

<210> 310
 <211> 35
 <212> PRT
 <213> Haemophilus influenzae

<400> 310
 Met Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu
 1 5 10 15
 Trp Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Leu Gly Trp Leu
 20 25 30
 Trp Gly Ile
 35

<210> 311
 <211> 35
 <212> PRT
 <213> Haemophilus influenzae

<400> 311
 Met Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu
 1 5 10 15
 Trp Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Leu Gly Trp Leu
 20 25 30
 Trp Gly Ile
 35

<210> 312
<211> 23
<212> PRT
<213> Influenza A virus

<400> 312
Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Ala
1 5 10 15
Arg Ala Asn Asp Ser Ser Asp
20

<210> 313
<211> 19
<212> PRT
<213> Influenza A virus

<400> 313
Glu Gln Gln Ser Ala Val Asp Ala Asp Asp Ser His Phe Val Ser Ile
1 5 10 15
Glu Leu Glu